

REMARKS

The undersigned representative thanks the Examiner for the indication of allowable subject matter in dependent claims 6-8 and 20-22. Claim 30 has been previously cancelled. The remaining claims stand rejected on various grounds. Reconsideration of the present application as amended is respectfully requested.

Claims 1, 17, and 19 stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 4,068,281 to Harnden. This ground of rejection is respectfully traversed. "[A]n invention is anticipated if the same device, including all the claim limitations, is shown in a single prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim." Richardson v. Suzuki Motor Co. Ltd., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The claims must not be treated as "mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning." Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Company et al., 730 F.2d 1452, 1459, 221 USPQ 481, 486 (Fed. Cir. 1984). As a result, a reference that coincidentally lists features of a claim without describing the claimed arrangement, relationship, and organization of such features cannot anticipate.

The Office Action parenthetically refers to "Fig. 10" to support its assertion that Harnden discloses a sensor; however, the Harnden reference does not include a Fig. 10. From other Office Action cites, it is possible that varistor 10 of Harnden's suppression circuit is somehow being asserted to disclose a sensor in the Office Action.

Varistor 10 is the primary component of the suppression circuitry described in the various embodiments of Harnden. For the embodiments of Figs. 4 and 6, a negative

temperature coefficient resistor 15 is thermally connected to the body of varistor 10. This resistor 15 and SCR 16 (or TRIAC 23 in the case of Fig. 6) are activated only in response to a transient energy level in excess of that deemed acceptable for the varistor 10 to withstand alone. Without the varistor 10, the remaining secondary components (resistor 15, SCR 16, and TRIAC 23) would not perform the suppression sought by Harnden. Indeed, Harnden's primary goal is focused on providing protection for transients too large for varistor 10 to dissipate alone. It is respectfully submitted that construing varistor 10 to be a sensor or sensing device of the types defined in the claims of the present application is unreasonably broad.

The features of independent claim 1 include a sensor operable to detect one or more physical characteristics and provide a corresponding electrical sensor signal. There is no disclosure in Harnden's Fig. 4 embodiment of an electrical sensor signal that corresponds to one or more physical characteristics detectable with varistor 10. In Harnden's Fig. 6 embodiment, resistor 15 is connected to terminal 22 of varistor 10 instead of power supply rail 13 (See Harnden, Fig. 6 and col. 5, lines 38-44).

Even assuming *arguendo* that Harnden's varistor 10 properly discloses a sensor, the features of claim 1 include both a sensor and transient suppression circuitry with certain interrelation. For example, this transient suppression circuitry is responsive to a power surge condition from an electrical power source for the sensor to dissipate electrical power associated with the surge through a first negative temperature coefficient thermistor. Without varistor 10, the resistor 15 and SCR 16 (or TRIAC 23) become inoperable remnants of the suppression circuit that cannot be reasonably construed to disclose the transient suppression circuitry defined in claim 1. On the

other hand, If varistor 10 is included in Harnden's suppression circuit to establish anticipation, then the separately claimed sensor is absent. Thus, it is submitted that Harnden fails to disclose transient suppression circuitry operable as defined in claim 1 and also a sensor separate from such operable circuitry, where the sensor is operable to provide a corresponding electrical sensor signal.

In addition, immediately following the preamble of claim 1 it recites a sensing device that includes the sensor and the transient suppression circuitry. In other words, the combination of the sensor and the transient suppression circuitry are both included in a sensing device. The asserted embodiments of Harnden are directed to self-contained varistor protection, which fails to disclose a sensing device as defined by claim 1.

Independent claim 17 was also rejected as being anticipated by Harnden. Claim 17 comprises a sensing device including a sensor and transient suppression circuitry; and therefore is not anticipated for the same reasons that claim 1 is not anticipated. Moreover, the features of claim 17 include a connector to couple the sensing device to other equipment including an electrical power source for the sensor. The Office Action cites to description of the Fig. 4 embodiment at column 4, lines 55-56, which states "[s]mall transients between the power supply lines 13 and 14 are absorbed in the varistor 10." This citation fails to disclose a connector as defined in claim 17. In addition, the Fig. 4 embodiment lacks the requisite corresponding electrical sensor signal anyway. Furthermore, resistor 15 of the Fig. 6 embodiment is connected to terminal 22 rather than the power supply rail 13. Furthermore, the prohibition against treating the claims as a mere catalog of parts forbids undisclosed rearrangement of the embodiments to assert anticipation.

Claim 2 stands rejected under 35 USC §103(a) as being unpatentable over Harnden in view of U.S. Patent No. 5,672,940 to Wu. This ground of rejection is respectfully traversed. Claim 2 depends from claim 1. Further grounds support the patentability of claim 2 in addition to the reasons supporting patentability of the base claim.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." Manual of Patent Examining Procedure (MPEP) §2142 (citations omitted). If a "statement is of a type that gives only general guidance and is not specific as to the particular form of the claimed invention and how to achieve it ... [s]uch a suggestion may make an approach 'obvious to try' but it does not make the invention obvious." Ex parte Obukowicz, 27 USPQ2d 1063, 1065 (U.S. Pat. and Trademark Off. Bd. of Pat. App. & Interferences 1993) (citations omitted).

The Office Action asserts that including a second negative temperature coefficient resistor as taught by Wu into Harnden "for the purpose of providing a more accurate sensing means" would be obvious. There is no indication of how/where the second resistor would be included in any of the Harnden embodiments -- let alone how the addition would provide more accurate sensing means. Assuming *arguendo* that the

varistor 10 is a sensor, how does adding another resistor make it more accurate? The asserted purpose seems little more than a result oriented conclusion rather than a specific rationale establishing the requisite suggestion or motivation to combine the references as asserted.

Other reasons also reveal the absence of the requisite motivation or suggestion to combine. For example, the cited background description of Wu is directed to current limiting elements that progressively reduce the current applied to degaussing coils over a degaussing interval following the connection of a television to AC mains. In contrast, all of Harnden's embodiments are directed to the progressive increase of surge handling capacity -- such that the resistor 15 operates only when the power is too great for the varistor 10 to handle it -- triggered by an excessive current or voltage. Accordingly, the cited passages of Harnden and Wu are at cross-purposes, discouraging those skilled in the art from considering the asserted combination, and undermining any reasonable expectation of success. Thus, claim 2 is believed to be patentable over the asserted Harnden/Wu combination.

Claims 3 and 18 stand rejected under 35 USC §103(a) as being unpatentable over Harnden in view of U.S. Patent No. 5,206,596 to Beihoff et al. This ground of rejection is respectfully traversed. The Office Action recognizes that Harnden does not disclose sensing a change in a magnetic field detectable with the sensor, turning instead to Beihoff. The citation to Beihoff in the Office Action is included in a description of branch circuit breaker 34 (shown in Fig. 2):

Circuit breaker 34 includes an overload trip mechanism 52 having a thermal/magnetic characteristic tripping breaker contacts 54 to an open circuit condition in response to a given circuit overload condition, to disconnect load 30 from the voltage source 26, as is

known in the prior art. It is also known in the prior art to provide circuit breaker 34 with ground fault interrupter circuitry 56 responding to a line or neutral to ground fault to gate SCR 58 into conduction to in turn energize coil 60 which opens breaker contacts 54. (Beihoff, col. 3, lines 24-33). As a careful review of this passage reveals, it fails to disclose magnetic field sensing of any type. Instead, the thermal/magnetic characteristic refers to the mechanism used to move a conductive member to provide an open circuit. These mechanisms are explained earlier at col. 1, lines 30-44 of Beihoff, which is reproduced as follows:

A circuit breaker has a thermal/magnetic trip characteristic. The thermal characteristic is operative in response to overload current of extended duration which heats a bimetal member, causing movement of the latter, which in turn releases a latch to trip open a set of contacts. For example, the thermal characteristic would respond to 30 amps being drawn in a 15 amp circuit. The magnetic characteristic is operative in response to a sudden high magnitude current overload condition, and **uses the magnetic field generated in a magnetic core to attract an armature**, which movement releases the latch to open the contacts. As an example, the magnetic type actuation occurs in response to a short circuit wherein the hot line conductor becomes directly connected with ground or neutral, bypassing the load.

(emphasis added). Again, this passage fails to describe any type of magnetic field sensing.

As previously noted, varistor 10 plays a primary role in the operation of the suppression circuitry of Harnden. In fact, Harnden's central objective is to provide overload protection for varistors. (See, for example, Harnden, col. 2, lines 54-60). There is no disclosure that a varistor 10 can detect a change in a magnetic field in Harnden or Beihoff. Furthermore, to suggest replacing varistor 10 with a different sensor type destroys the intended purpose of Harnden. "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the

proposed modification.” MPEP § 2143.01. This section of the MPEP also states that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” Furthermore, there is no explanation or evidence in support of the supposition that the combination would be obvious for the purpose of reducing risk of injury or damage. Indeed, magnetic actuation may be inferior or otherwise inadequate to provide desired protection. Thus, numerous grounds support the patentability of claims 3 and 18.

Claims 4, 5, 23-27, 31, and 33-35 stand rejected under 35 USC §103(a) as being unpatentable over Harnden in view of U.S. Patent No. 4,510,482 to McClanahan et al. This ground of rejection is respectfully traversed. The rejection asserts that the combination would be obvious for the purpose of providing a more robust protective circuit without any explanation or support. Indeed, how does the asserted piece-meal splicing together of the two references make a more robust protective circuit? There is no explanation of how this more robust design results. It is respectfully submitted that the requisite motive to combine has not been provided. “The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” In re Fritch, 23 USPQ2d, 1783-84 (Fed. Cir. 1992) (holding that a combination of references does not render a claim obvious due to a lack of suggestion or motivation to combine or modify).

Regarding claims 4, 5, 23, 34, and 26, it is respectfully submitted that the Office Action fails to clearly indicate which aspects of Harnden are being combined with

McClanahan. As best understood, it is believed the Office Action relies on Harnden for a purported sensor (varistor 10), and seems to be relying on McClanahan for a controller including a power source and transient suppression circuitry between the sensor and the power source (stating that “McClanahan et al. disclose a protective circuit including a negative temperature coefficient thermistor ... and transient suppression circuitry”) However, it remains unclear how the various features of McClanahan are being incorporated into Harnden. With this understanding in mind, the following comments are made. Please clarify this ground of rejection to the extent it differs from this understanding.

Regarding dependent claim 4, its features include a controller operable to provide the electrical power source for the sensor. There is no teaching or suggestion that controller 20 of McClanahan includes a power source for the sensor. At best controller 20 only provides power to energize coil 14, which cannot reasonably be construed to be a sensor as recited in the claims. In fact, the input circuitry, including the negative temperature coefficient resistor 10a of controller 20 are all “powered” by the electrical input signal voltage applied at input 2. Claim 5 depends from claim 4 and is patentable for at least the same reasons.

Included in the features of independent claim 23, is a controller including a power source for the sensor. For at least the same reasons set forth in connection with claim 4, claim 23 is also not taught or suggested. The features of claim 23 also include transient suppression circuitry coupled between the sensor and the power source, which are not understood to be present in McClanahan given the absence of a power source for the sensor in controller 20. Independent claim 35 also recites a controller

including a power source for the sensor, and is likewise patentable for these and other reasons.

The features of dependent claim 24 include the first thermistor being of a negative temperature coefficient type and the transient circuitry further including a second thermistor of this type. Neither Harnden nor McClanahan discloses two negative temperature coefficient thermistors in transient suppression circuitry as recited in claim 24.

To reject claim 25, the Office Action asserts that column 4, lines 39-41 of Harnden discloses a means for indicating coupled to the sensor. This citation is to the Harnden's Fig. 3 embodiment. This embodiment only discloses a thermal connection between varistor 10 and resistor 15 -- not an electrical connection. Indeed, the reason there is no electrical connection appears to be because resistor 15 and SCR 16 of Fig. 3 are meant to participate in a different circuit involving a switch, a motor to provide cooling air, or the like that would operate independent of the overloaded circuit including varistor 10. Otherwise the motor, switch, or the like would just aggravate the overload condition. Accordingly, the Fig. 3 embodiment fails to provide a corresponding electrical sensor signal as recited in the base claim 23.

Regarding the explanation used to reject claims 27, 31, and 33-35, the Office Action asserts that McClanahan "discloses the sensor and the transient suppression circuitry are incorporated into an integral sensing device unit and packaging the sensing device and the first negative temperature coefficient thermistor within an integral sensing device unit." This statement further confuses what part of Harnden is being used because it states that McClanahan discloses the sensor. Nonetheless, in the

absence of further explanation, the sensor is still surmised to somehow be disclosed by Harnden -- otherwise it would not seem any part of Harnden is being asserted in this §103 combination.

The transient circuitry of McClanahan purportedly prevents burn-out through the low impedance input 2 of a test probe as defined by switch 8 and resistors 10a and 10b in series. Burn-out is prevented by opening switch 8 in response to the activation of coil 14 with controller 20. Resistors 10a and 10b are desired to collectively present a linear low impedance input for the test probe up to an overload voltage level. See, McClanahan, col. 3, lines 27-35. Incorporation with a nonlinear varistor of the type described in Harnden is incongruent. Furthermore, somehow interfacing the transient circuitry of McClanahan between Harnden's power supply and varistor or, for the sake of argument, from the controller 20 of McClanahan would not be reasonably expected to lead to success -- in fact, it is not at all clear it would operate in any acceptable fashion. Indeed, Harnden's goal of protecting thermal overloads of the varistor would seem to be threatened by the purported arrangement.

Claims 9, 10, 15, and 16 stand rejected under 35 USC §103(a) as being unpatentable over Harnden in view of U.S. Patent No. 6,201,680 to Tokatian et al. This ground of rejection is respectfully traversed. The features of independent claim 9 include suppressing a transient power surge **initiated by said providing electrical power to activate a sensing device** ... wherein said suppressing includes **dissipating at least a portion of the transient power surge with a first negative temperature coefficient thermistor**. (emphasis added). Both the Harnden and Tokatian references fail to teach or suggest such features, lacking any reference to a power

surge initiated by providing electrical power to activate a sensing device as defined by claim 9.

Besides the patentability of the base claim, further reasons support patentability of rejected claims depending therefrom. For example, the features of claim 15 include the sensing device and an indicator electrically coupled together. As explained in connection with the rejection of claim 25, the Office Action's reliance on the Fig. 3 embodiment of Harnden is misplaced because it lacks a sensor and indicator electrically coupled together. Claim 16 depends from claim 15 and is further patentable for at least the same reasons.

Claim 11 stands rejected under 35 USC §103(a) as being unpatentable over Harnden and Tokatian as applied to claim 9, and further in view of Wu. This ground of rejection is respectfully traversed. This rejection is flawed for at least the same reasons that the underlying combinations of Harnden/Wu and Harnden/Tokatian are flawed.

Claim 12, 14, and 32 stand rejected under 35 USC §103(a) as being unpatentable over Harnden and Tokatian as applied to claim 9, and further in view of McClanahan. This ground of rejection is respectfully traversed, being flawed for at least the same reasons that the underlying combinations of Harnden/McClanahan and Harnden/Tokatian are flawed.

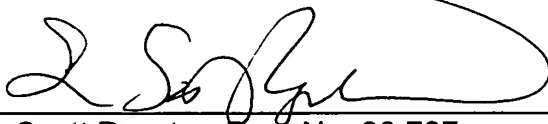
Claim 13 stands rejected under 35 USC §103(a) as being unpatentable over Harnden and Tokatian as applied to claim 9, and further in view of Beihoff. This ground of rejection is respectfully traversed, being improper for at least the same reasons that the underlying combinations of Harnden/Tokatian and Harnden/Beihoff are flawed.

Claim 29 stands rejected under 35 USC §103(a) as being unpatentable over Harnden and McClanahan as applied to claim 23, and further in view of Beihoff. This ground of rejection is respectfully traversed. This rejection is flawed for at least the same reasons that the underlying combinations of Harnden/McClanahan and Harnden/Beihoff are flawed.

Claims 36 and 37 stand rejected under 35 USC §103(a) as being unpatentable over Harnden and McClanahan as applied to claim 23, and further in view of Wu. This ground of rejection is respectfully traversed. This rejection is flawed for at least the same reasons that the underlying combinations of Harnden/McClanahan and Harnden/Wu are flawed.

In view of the forgoing, it is believed that claims 1-29 and 31-37 are in condition for allowance. Reconsideration of the above-identified patent application is respectfully requested. The Examiner is cordially invited to contact the undersigned by telephone to discuss any unresolved matters.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'L. Scott Paynter', is written over a horizontal line.

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